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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

September 18, 1992

Donna R. Searcy
Secretary
Federal Communications Commission
1919 M Street N.W., Rm 222
Washington, D.C. 20554

Attention: Executive Secretary

Re: *Ex Parte* Meetings, CC Docket No. 92-166/
ET Docket No. 92-28
LOF 20000.5

Dear Ms. Searcy:

This is to report that the following *ex parte* contacts were made on behalf of CELSAT, Inc. on September 17, 1992 in connection with matters pending in the above-referenced dockets:

1. David Otten, President of CELSAT met with Commissioner Ervin S. Duggan;

2. Albert Fraizer, Vice President of CELSAT met with Brian Fontes of Commissioner Quello's office; and

3. Messrs. Otten, Fraizer and Victor Toth, attorney, met with Dr. Thomas Stanley and members of his staff.

In the case of the first two meetings the scope of the discussions extended to an overview presentation of CELSAT's hybrid space/terrestrial concept; and the case of the meeting with Dr. Stanley the topics also included discussion of the Commission's disposition of CELSAT's petition in its Notice of Proposed Rule Making released in the above dockets on September 4, 1992, including issues of spectrum allocation and the proposed negotiated rule making process. A copy of the slide presentation used in each meeting is attached.

Sincerely,

Victor J. Toth

Enclosure

No. of Copies rec'd 0+1
List A B C D E

CELSTAR SYSTEM OVERVIEW

Albert H. Frazier

David D. Otten

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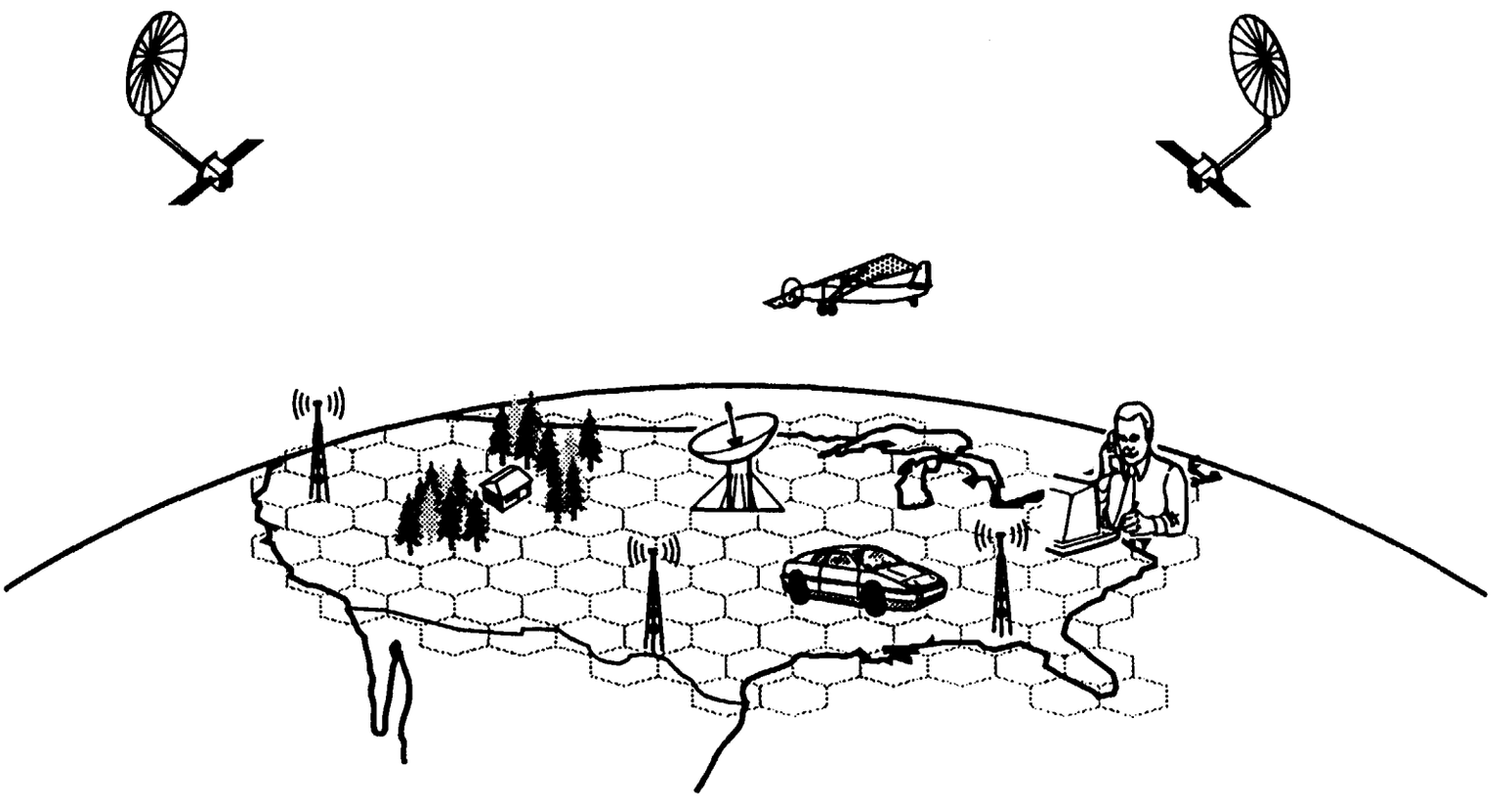
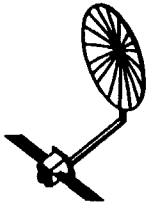


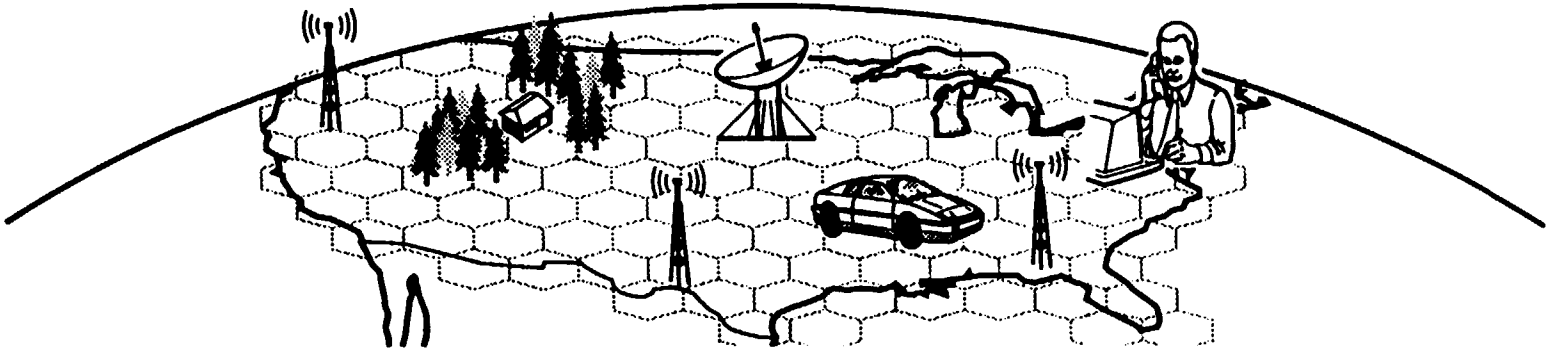
CELSAT

CELSTAR SYSTEM SUMMARY



Celsat System Summary

- MAXIMUM BENEFIT TO THE PUBLIC
- MOST EFFICIENT USE OF SPECTRUM
- LOWEST END USER CHARGES
- GREATEST VARIETY OF SERVICES



CELSTAR INTEGRATED APPROACH — HYBRID GROUND CELLULAR AND SATELLITE TECHNOLOGIES

- DYNAMIC ALLOCATION OF SPACE/GROUND CIRCUITS
- NEW LARGE ANTENNA UTILIZES FULLY PROVEN TECHNOLOGY
- CDMA-BASED DIGITAL VOICE, FAX AND VIDEO SERVICES
- START SERVICE IN THE U.S. AND EXPAND TO WORLDWIDE

CURRENT CELLULAR STATUS

- CURRENT CELLULAR LACKS NATIONAL ACCESS
  - HIGH COST OF DEPLOYMENT
  - LARGE GAPS IN GEOGRAPHIC COVERAGE
- NO FIRM PLANS FOR BROADBAND EXPANSION
  - HIGH SPEED FAX
  - HIGH SPEED DATA
  - COMPRESSED VIDEO
- VOICE CONVERSATIONS
  - NOT PRIVATE
  - SUBJECT TO DROPOUTS AND NOISE
- LIMIT OF CELLULAR DEMAND REMAINS UNTESTED
  - HIGH COST FOR USERS' AIR TIME
  - CAPACITY BEGINNING TO SATURATE IN CERTAIN AREAS (L.A., N.Y., ETC.)
  - CONVERSION TO DIGITAL REMAINS CONTROVERSIAL (CDMA VS. TDMA) AND WILL BE COSTLY
- PCN/MICROCELL ISSUES
  - SPECTRUM
  - DEMAND
  - COVERAGE ECONOMICS
  - EQUIPMENT

CELSAT'S FEATURES

One small, low cost, light weight, low power mobile telephone does it all.
- **Satellite, ground cells, and PCN in the same frequency band**

Highest quality voice

Highest speed
- **Fax**
- **Data**

Compressed video
- **Picture phone**
- **Other specialized applications**

Position determination

Lowest RF Power - one fifth (1/5) of any other

Broadcast capability - U.S. or regional
- **Music, news, information, compressed video, paging**

CELSAT HAS THE LOWEST COST SATELLITE SYSTEM

Cost per phone call is one order of magnitude less than all others:

- **One thirtieth (1/30) of Motorola's cost**
- **One twelfth (1/12) of Loral/Qualcomm's cost**
- **One eighth (1/8) of TRW's cost.**

Minimum cost for full time U.S. coverage:

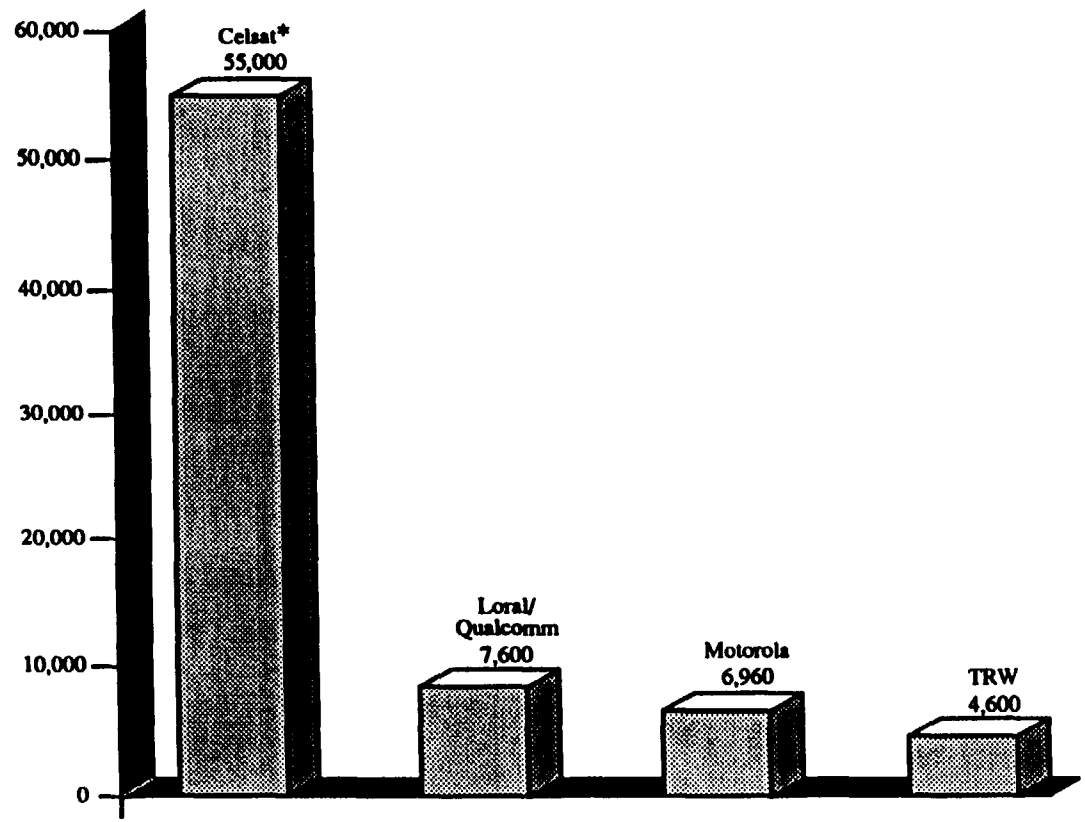
- **Celsat = $220M**
- **Motorola = $2,100M**
- **Loral/Qualcomm = $450M**
- **TRW = $1,200M**

Celsat will charge *one half* current cellular price.

- **Motorola will charge *six times* current cellular price.**

CELSAT

CAPACITY COMPARISON

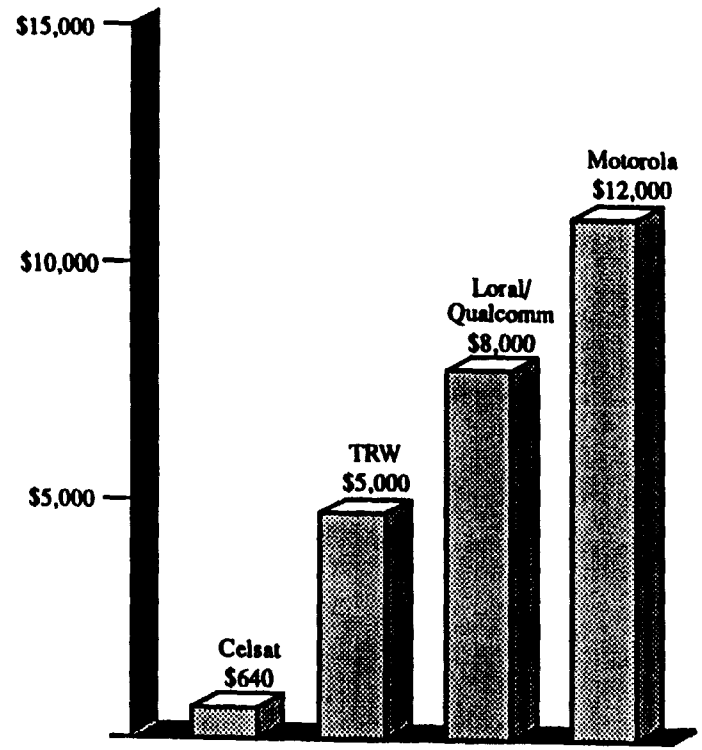


- CELSTAR WILL SERVE AN ORDER OF MAGNITUDE MORE USERS
- CELSTAR WILL OFFER 10,000 CIRCUITS ON AN INDEFEASIBLES RIGHT OF USE BASIS

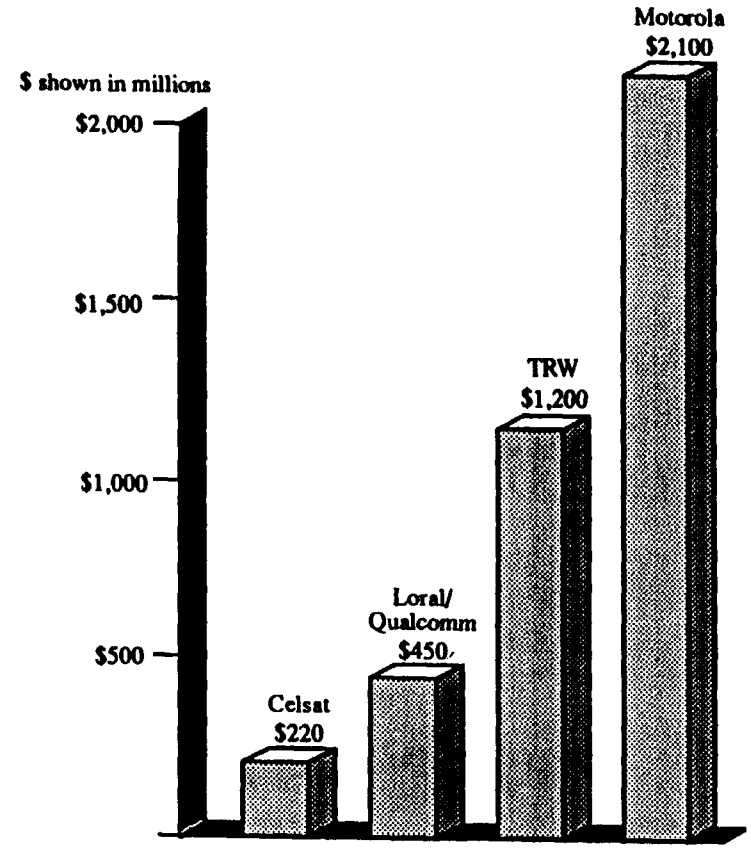
* Does not include Celsat's exclusive ground capacity - well in excess of 1,000,000 circuits.

CELSAT

COST COMPARISON



ANNUAL COST/VOICE CIRCUIT



MINIMUM COST FOR FULL-TIME COVERAGE

CELSTAR HAS THE LOWEST COST

ORBIT SELECTION ISSUES*

GEO

- 1/4 sec TIME DELAY
  - — NO IMPACT ON FAX OR DATA
  - — DOESN'T EXIST FOR GROUND PORTION OF CELSTAR HYBRID NETWORK
- PRICE AT 25¢ /MINUTE
- 55,000 U.S. VOICE CIRCUITS
- CONTINUOUS, 24-HOURS PER DAY OPERATION WITH ONE SATELLITE ($220M)
- LOWEST POWER (0.1 WATTS) SUBSCRIBER TRANSMITTER
- EARLIEST POSSIBLE IMPLEMENTATION

LEO/MEO

- NEGLIGIBLE TIME DELAY
- PRICE UP TO $3/MINUTE
- 7,600 U.S. VOICE CIRCUITS MAXIMUM
- CONTINUOUS, 24-HOURS PER DAY OPERATION REQUIRES 6 TO 77 SATELLITES ($450M TO $2,100M)
- 0.5 WATTS OR MORE SUBSCRIBER TRANSMITTER

OVERRIDING COST AND CAPACITY CONSIDERATIONS LED CELSAT TO SELECT GEO ORBITS FOR ITS INITIAL IMPLEMENTATION

*NOTE: CELSAT PATENT PERMITS USE OF ANY ORBIT.

CELSTAR OUT-PERFORMS ALL PROPOSED SYSTEMS

PROPOSAL	EQUIVALENT VOICE CIRCUITS, U.S.	ANNUAL COST PER EQUIVALENT VOICE CIRCUIT (SATELLITE)	FREQUENCY EFFICIENCY (EQUIVALENT VOICE CIRCUITS PER MHz)	SUBSCRIBER UNIT RF POWER
CELSTAR	55,000	$640	1465	0.1 Watts
LORAL/ QUALCOMM	7,600	$7,960	152	0.5 Watts
MOTOROLA	6,960	$12,080	419	0.5 Watts
TRW	4,600	$5,380	139	0.5 Watts

USER COMMUNITIES SERVED BY THE CELSTAR SYSTEM

- **PUBLIC AND EMERGENCY SERVICES:**
  EMERGENCY, MEDICAL, FIRE, LAW ENFORCEMENT, MILITARY
- **TRANSPORTATION:**
  AERONAUTICAL, MARINE, LAND
- **COMMERCIAL:**
  BUSINESS, PROFESSIONAL
- **PERSONAL**
- **MISCELLANEOUS:**
  REMOTE SENSOR READOUT, SPACECRAFT READOUT, ETC.

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UNIQUE CELSTAR BENEFITS TO THE PUBLIC

UNIQUE CELSTAR FEATURE	PUBLIC AND EMERGENCY SERVICES	TRANSPORTATION	COMMERCIAL	PERSONAL
LOWEST PRICE GREATEST CAPACITY	THESE TWO KEY BENEFITS PERMIT SERVICE TO THE LARGEST POSSIBLE NUMBER OF USERS AT THE LOWEST PRICE			
ACCURATE, TIMELY POSITION DETERMINATION ALONG WITH VOICE AND DATA	**MILITARY** • GREATLY REDUCE CASUALTIES FROM FRIENDLY FIRE • ENHANCE ABILITY TO WIN ANY CONFLICT **MEDICAL** • SAVE LIVES • MORE RAPID AND EFFECTIVE TREATMENT DUE TO RAPID RESPONSE	**AIR IS MOST IMPORTANT** • RAPIDLY FIND DOWNED AIRCRAFT • LOW COST AID TO NAVIGATION	• SAVE TIME • SAVE MONEY BY MORE EFFICIENT OPERATIONS	• HIGH VALUE IN SOME EMERGENCY SITUATIONS • WILL PROVE USEFUL WHEN AVAILABLE AT LOW COST
LOWEST POWER	**MILITARY** • VERY IMPORTANT TO REDUCE PROBABILITY OF INTERCEPTION • SMALL BATTERY VERY IMPORTANT TO FOOT SOLDIERS **LAW ENFORCEMENT** • LOW PROBABILITY OF INTERCEPT IMPORTANT IN SOME CASES **SMALL BATTERY USEFUL IN ALL CATEGORIES**	**LONG BATTERY LIFE** • IMPORTANT IN EMERGENCY SITUATION	SMALL BATTERY USEFUL FOR PORTABLES	

CELSTAR SUMMARY

IMPORTANT EVALUATION CRITERIA:	CELSTAR CAPABILITIES
MAXIMUM BENEFIT TO U.S. CITIZENS	• SERVES 6.6 TIMES AS MANY SATELLITE USERS AS NEXT BEST PROPOSAL. NO ONE ELSE PROPOSED ALSO SERVING GROUND USERS IN THE SAME SPECTRUM. 10 TO 20 MILLION SUBSCRIBERS ENVISIONED.
MOST EFFICIENT USE OF SPECTRUM	• 5.3 TIMES MORE FREQUENCY EFFICIENT THAN THE NEXT MOST EFFICIENT PROPOSAL
LOWEST END USER CHARGES	• 1/8 THE ANNUAL COST OF A SATELLITE CIRCUIT OF THE NEXT LOWEST COST PROPOSAL. ASSURES LOWEST END USER CHARGE.
GREATEST VARIETY OF SERVICES	• PROVIDES VOICE, POSITION DETERMINATION, LOW TO HIGH SPEED DIGITAL DATA, LOW TO HIGH SPEED FAX AND COMPRESSED VIDEO TO PUBLIC AND EMERGENCY SERVICES, THE TRANSPORTATION INDUSTRY, BUSINESSES AND PROFESSIONALS, AND INDIVIDUAL CITIZENS.
PROMOTES MARKET COMPETITION	• A PLATFORM FOR CDMA TECHNOLOGY: SPACE, GROUND CELLULAR AND PCN.
	• HUGE MARKET OPPORTUNITY FOR MANUFACTURERS (PORTABLE PHONES, COMPUTERS, VIDEO RECEIVERS).
	• INFRASTRUCTURE MARKET OPPORTUNITIES (SATELLITES, GROUND HUBS, CELLULAR SWITCHES AND TRANSMISSION SERVICES).
	• PROMOTES REGIONAL CELLULAR AND LOCAL LOOP COMPETITION.

CELSAT'S HPCN PROPOSAL IS A BREAKTHROUGH

Space and ground cellular in the same frequency band

- **FCC approval worth $5 Billion to Celsat**

Full U.S. coverage

- **Land, sea, air**
- **Equal rural and urban coverage**

Half the price of current cellular

Substantial new features

The concept is patented.

FEASIBILITY OF CELSAT'S 20-METER DIAMETER SPACECRAFT ANTENNA

- General Robert Stewart, U.S. Space Command (Retired): "We found all elements of the concept technically feasible and well within today's state of the art. We see no unusual difficulty in implementing the system at approximately the cost indicated by Celsat."

- Comments taken from opposition (April 8, 1992) to Celsat's request for a Pioneer's Preference
  - "[Celstar involves]...relatively routine design features which reflect merely the use of existing satellite communications technology." Loral Qualcomm Space Systems, page 6
  - "...the cornerstone of Celsat's system...large aperture multi-beam antennas and CDMA, are well known..." Motorola, page 25
  - "[Celstar's]...technology is well developed..." TRW, PP 14

- Hughes proposed a 17-meter diameter spacecraft antenna.

- Independent review.

SUMMARY OF ATTACKS ON CELSAT'S FILINGS

- Most issues were legal (twelve legal issues)
  - Six were errors on the part of the opposition.
    Most flagrant error: "Celsat's proposal not innovative"
  - Five items explained by Celsat in its subsequent response
  - One item, impact of missing RDSS cut-off date, remains for the FCC to address. Celsat has also proposed alternative areas of spectrum.
- Four technical issues raised
  - Three errors
  - Feasibility of a 20-meter diameter spacecraft antenna (see next chart)
- One business issue raised by one company

CELSAT'S FUNDAMENTAL DEMONSTRATION OF ORDER OF MAGNITUDE REDUCTION IN COST, ORDER OF MAGNITUDE INCREASE IN CAPACITY AND STARTLING NEW SERVICE CAPABILITIES WERE NOT CHALLENGED BY MOTOROLA, GTE, TRW, LORAL/QUALCOMM OR AMSC.

CELSAT SERVES AMERICA FIRST

- Fastest path to full U.S. service

- Celsat is an all U.S. system.

- All others (Motorola, TRW, Loral/Qualcomm)
  - Require foreign PTT approvals/deals
  - U.S. users may initially pay for a worldwide system; i.e. subsidize foreign use.

- Loral/Qualcomm Space Systems boasts "Space systems/alliance the international satellite partnership backed by Aerospatiale, Alcatel, Alenea, and Loral is expected to play a major role in the design, development, and production of the Globalstar satellites."